

AMENDMENTS TO THE CLAIMS

Claims 1, 3 and 30 are amended. Below is a list of all of the now pending claims with markings to indicate changes that have been made.

1. (Amended) An integrated circuit package comprising:
 - a molded plastic body;
 - a plurality of plastic posts arranged in a checkerboard pattern, each said post extending integrally from said body;
 - a plurality of electrically separate metal terminals coating a sidewall of at least one of said posts;
 - a plurality of electrically conductive paths each electrically coupled to at least one of said metal terminals; and
 - an integrated circuit including a plurality of bond pads, said integrated circuit mounted on said body and electrically coupled to at least some of said paths through said bond pads.
2. The integrated circuit package of Claim 1, wherein a total number of said posts is less than a total number of said bond pads.
3. (Amended) The integrated circuit package of Claim 1, wherein said posts are adapted to engage posts of another structure arranged in a reciprocal checkerboard pattern.
4. The integrated circuit package of Claim 1, wherein a shape of at least some of said posts comprises a cylinder.
5. (Withdrawn)
6. (Withdrawn)
7. (Withdrawn)
8. The integrated circuit package of Claim 1, further comprising a plurality of bond wires each electrically coupled between said bond pads and at least some of said paths.

LAW OFFICES OF
SKJERVEN MORRILL LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979

9. The integrated circuit package of Claim 1, further comprising an encapsulant material covering at least a part of said integrated circuit.

10. (Withdrawn)

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Withdrawn)

25. An integrated circuit package comprising:

a plastic body with a plurality of plastic posts each extending integrally from said body, each said post having a plurality of separate metal layers coated on a sidewall of the post;

metal traces overlying the plastic body;

metal vias extending through the plastic body, with each via being electrically coupled between at least one said trace and one said metal layer; and

an integrated circuit coupled to said body, wherein the integrated circuit is electrically coupled to at least two of the separate metal layers of each of at least two of the posts through some of said metal traces and said vias.

LAW OFFICES OF
SKJERVEN MORRILL LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979

26. The integrated circuit package of Claim 25, wherein the integrated circuit includes a plurality of bond pads each electrically coupled to one of said metal layers, and a total number of said posts is less than a total number of said bond pads.

27. The integrated circuit package of Claim 25, wherein said posts are arranged in a checkerboard pattern.

28. The integrated circuit package of Claim 25, wherein a shape of at least some of said posts comprises a cylinder.

29. An integrated circuit package comprising:

a plastic body with a plurality of plastic posts each extending integrally from said body, each said post having a plurality of separate metal layers coated on a sidewall of the post;

an integrated circuit coupled to said body, wherein the integrated circuit is electrically coupled to at least two of the separate metal layers of each of at least two of the posts.

30. (Amended) The integrated circuit package of claim 29, wherein the integrated circuit is electrically coupled to the at least to two of the separate metal layers through metal traces overlying said body.

31. (Withdrawn)

32. The integrated circuit package of Claim 29, wherein the integrated circuit includes a plurality of bond pads each electrically coupled to one of said metal layers, and a total number of said posts is less than a total number of said bond pads.

LAW OFFICES OF
SKJERVEN MORRILL LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979

REMARKS

1. Rejection of Claim 30 under 35 USC § 112

Claim 30 was rejected under 35 USC § 112 for lacking proper antecedent basis for “the at least to separate metal layers.” This has been changed to read “the at least two of the separate metal layers” as recited in Claim 29. Therefore, the rejection has been overcome.

2. Rejection of Claims 1-4 and 8 under 35 USC § 102

Claim 1 was rejected under 35 USC § 102(b) as being anticipated by Goldfarb (U.S. Patent 4,654,472). Claim 1 is amended to include that a plurality of plastic posts are “arranged in a checkerboard pattern.” This feature was previously in Claim 3, and is clearly supported in the specification. “Fig. 3 shows a checkerboard arrangement of posts 18 on lower side 22,” (page 7, lines 16 and 17).

Goldfarb does not show posts arranged in a checkerboard pattern. The Examiner cited feature 54 in Goldfarb’s Figures 1-3 as showing this feature. However, feature 54 is described as “a flange” (column 4, line 60). Goldfarb does not describe the arrangement of flanges. The flanges shown in Figures 1-3 are not in a checkerboard pattern. Only Figure 2c shows more than two flanges, and these are not in a checkerboard arrangement. Therefore, the rejection has been overcome.

Claim 3 has been amended to include the feature that “said posts are adapted to engage posts of another structure arranged in a reciprocal checkerboard pattern.” This feature is clearly shown in Applicants’ Figure 5, and is supported in the text of the application, e.g. “the interlocking spatial relationship between posts 18 of package 10 and posts 54 of mounting substrate 52,” (page 9, lines 15 and 16). Clearly, Goldfarb does not show this feature of Claim 3 because Goldfarb does not have posts in a checkerboard arrangement and does not disclose the interlocking of the posts of the package with other posts. Goldfarb’s Figures 3a, 3b and 3c show mounting the posts on a flat substrate or in a hole.

Claims 2, 4, and 8 depend from Claim 1 and are allowable at least for the reasons given with respect to Claim 1.

LAW OFFICES OF
SKJERVEN MORRILL LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979

3. Rejection of Claims 25-28 under 35 USC § 102

Claim 25 was rejected under 35 USC § 102(b) as anticipated by Goldfarb. Claim 25 recites “metal traces overlying the plastic body.” No such metal traces are shown by Goldfarb. In Goldfarb, wires 23, 25 directly connect the integrated circuit to the conductive leads 18. See Figure 1a. As a contrary example within Claim 25, Applicants’ Figure 2 shows bond wires 34 connecting the integrated circuit to traces 28 overlying the plastic body. The traces 28 connect to vias 30.

Claim 25 also includes the feature of “a plurality of metal layers coated on a sidewall of the post.” This feature is not taught by Goldfarb. Instead, Goldfarb has conductive leads inserted in channels. “Channels 17, aligned with the holes 16, are formed on the outside of the forms … Conductive leads 18 are inserted or molded in the holes 16 and extend in the channels to the bottom of the form,” (column 3, lines 59-64). Clearly, these leads are not “coated on a sidewall.” Because this feature is not disclosed by Goldfarb the rejection has been overcome.

Claims 26 - 28 depend from Claim 25 and are therefore allowable for at least the reasons given for Claim 25 above. In addition, Claim 27 recites, “posts are arranged in a checkerboard pattern.” This is similar to the feature of Claim 1 discussed above. Therefore, Claim 27 is additionally allowable for the reasons given with respect to Claim 1.

4. Rejection of Claims 29, 30 and 32 under 35 USC § 102

Claim 29 was rejected under 35 USC § 102(b) as anticipated by Goldfarb. Claim 29 includes the feature “metal layers coated on a sidewall of the post.” This feature is similar to the feature of Claim 25 discussed above. Hence, Claim 29 is not anticipated for at least the reasons given with respect to Claim 25.

Claims 30 and 32 depend from Claim 29 and are therefore allowable for depending from an allowable independent claim.

LAW OFFICES OF
SKJERVEN MORRILL LLP.
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979

5. Rejection of Claim 9 under 35 USC § 103

In the Office Action dated November 6, 2002, Claim 9 was rejected under 35 USC § 103(a) as unpatentable over Goldfarb in view of Barreto (U.S. Patent 5,220,489). However, Claim 9 depends from Claim 1 and is therefore allowable for at least the reasons given with respect to Claim 1.

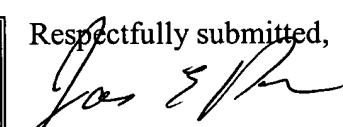
CONCLUSION

The claims are submitted to be allowable.

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Respectfully submitted,


James E. Parsons
Attorney for Applicants
Reg. No. 34,691

LAW OFFICES OF
SKJERVEN MORRILL LLP
25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979